

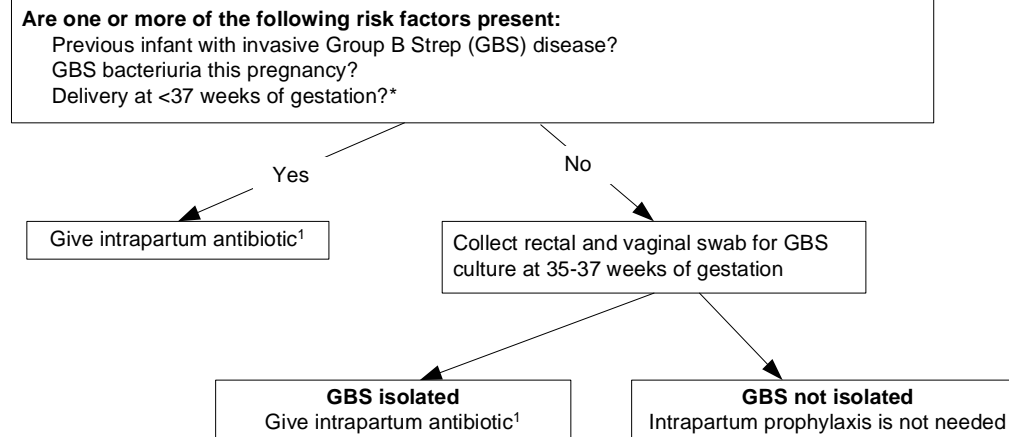
Group B Streptococcus Guidelines

Washington State Clinical Laboratory Advisory Council
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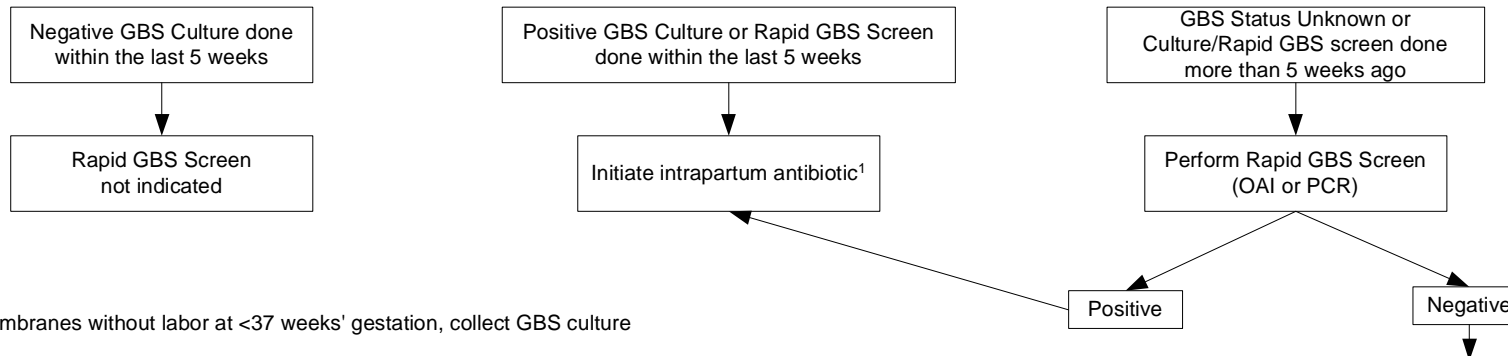
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The individual clinician is in the best position to determine which tests are most appropriate for a particular patient.

Prevention Strategy for Early Onset Using Prenatal Screening at 35 - 37 Weeks' Gestation:



At the Time of Delivery



Give intrapartum antibiotic¹ if one or more of the following risk factors present:
Previous infant with invasive GBS disease?
GBS bacteriuria this pregnancy?
Delivery <37 weeks of gestation?
Duration of ruptured membrane >18 hours?
Temperature >38°C (100.4°F)

* For ruptured membranes without labor at <37 weeks' gestation, collect GBS culture and either:

- Give antibiotics until cultures are completed and negative OR
- Begin antibiotics once positive culture results are available. No prophylaxis is needed if 35-37 weeks' culture result is known to be negative.

¹ Broad spectrum antibiotics may be considered at the discretion of the physician based on clinical indicators.

References:

- 1) Prevention of Perinatal Group B Streptococcal Disease. Centers for Disease Control and Prevention. MMWR 2002;51(RR11); 1-22.
- 2) Screening and Management Protocols for Group B Streptococcus in Pregnancy. Cary, J.C. Current Women's Health Reports 2002, 4:238-244.
- 3) Reisner D.P., et al. (2000). Performance of a group B streptococcal prophylaxis protocol combining high-risk factors and low-risk screen. Am J Obstet Gynecol, 182(6), pp 1335-43.

Procedures for collecting and processing clinical specimens for group B streptococcal culture and performing susceptibility testing to clindamycin and erythromycin

Procedures for collecting clinical specimens for culture of group B streptococcus at 35 - 37 weeks' gestation

- Swab the lower vagina (vaginal introitus), followed by the rectum (i.e., insert swab through the anal sphincter) using the same swab or two different swabs. Cultures should be collected in the outpatient setting by the healthcare provider or the patient herself, with appropriate instruction. Cervical cultures are not recommended and a speculum should not be used for culture collection.
- Place the swab(s) into a nonnutritive transport medium. Appropriate transport systems (e.g., Amies or Stuart's without charcoal) are commercially available. If vaginal and rectal swabs were collected separately, both swabs can be placed into the same container of medium. Transport media will maintain GBS viability for up to 4 days at room temperature or under refrigeration.
- Specimen labels should clearly identify that specimens are for group B streptococcal culture. If susceptibility testing is ordered for penicillin-allergic women, specimen labels should also identify the patient as penicillin-allergic and should specify that susceptibility testing for clindamycin and erythromycin should be performed if GBS is isolated.

Procedures for processing clinical specimens for culture of group B streptococcus

- Remove swab(s) from transport medium.² Inoculate swab(s) into a recommended selective broth medium, such as Todd-Hewitt broth supplemented with either gentamicin (8 ug/ml) and nalidixic acid (15 ug/ml), or with colistin (10 ug/ml) and nalidixic acid (15 ug/ml). Examples of appropriate commercially available options include Trans-Vag broth supplemented with 5% defibrinated sheep blood or LIM broth.³
- Incubate inoculated selective broth for 18-24 hours at 35-37° C in ambient air or 5% CO₂. Subculture the broth to a sheep blood agar plate (e.g., tryptic soy agar with 5% defibrinated sheep blood).

- Inspect and identify organisms suggestive of GBS (i.e., narrow zone of beta hemolysis, gram-positive cocci, catalase negative). Note that hemolysis may be difficult to observe, so typical colonies without hemolysis should also be further tested. If GBS is not identified after incubation for 18-24 hours, reincubate and inspect at 48 hours to identify suspected organisms.
- Various streptococcus grouping latex agglutination tests or other tests for GBS antigen detection (e.g., genetic probe) may be used for specific identification, or the CAMP test may be employed for presumptive identification.

Procedures for clindamycin and erythromycin disk susceptibility testing of isolates, when ordered for penicillin-allergic patients⁴

- Use a cotton swab to make a suspension from 18-24 hour growth of the organism in saline or Mueller-Hinton broth to match a 0.5 McFarland turbidity standard.
- Within 15 minutes of adjusting the turbidity, dip a sterile cotton swab into the adjusted suspension. The swab should be rotated several times and pressed firmly on the inside wall of the tube above the fluid level. Use the swab to inoculate the entire surface of a Mueller-Hinton sheep blood agar plate. After the plate is dry, use sterile forceps to place a clindamycin (2 ug) disk onto half of the plate and an erythromycin (15 ug) disk onto the other half.
- Incubate at 35°C in 5% CO₂ for 20-24 hours.
- Measure the diameter of the zone of inhibition using a ruler or calipers. Interpret according to NCCLS guidelines for *Streptococcus* species other than *S. pneumoniae* (2002 breakpoints:⁴ clindamycin: ≥ 19 mm = susceptible, 16-18 = intermediate, ≤ 15 = resistant; erythromycin: ≥ 21 mm = susceptible, 16-20 = intermediate, ≤ 15 = resistant).

² Before inoculation step, some laboratories may choose to roll swab(s) on a single sheep blood agar plate or CNA sheep blood agar plate. This should be done only in addition to, and not instead of, inoculation into selective broth. The plate should be streaked for isolation, incubated at 35-37°C in ambient air or 5% CO₂ for 18-24 hours and inspected for organisms suggestive of GBS as described above. If suspected colonies are confirmed as GBS, the broth can be discarded, thus shortening the time to obtain culture results.

³ Source: Fenton, LJ, Harper MH. Evaluation of colistin and nalidixic acid in Todd-Hewitt broth for selective isolation of group B streptococci. J Clin Microbiol 1979;9:167-9. Although Trans-Vag medium is often available without sheep blood, direct comparison of medium with and without sheep blood has shown higher yield when blood is added. LIM broth may also benefit from the addition of sheep blood, although the improvement in yield is smaller and sufficient data are not yet available to support a recommendation.

⁴ Source: NCCLS. Performance standard for antimicrobial susceptibility testing, M100-S12, Table 2H, Wayne, Pa: NCCLS, 2004. NCCLS recommends disk diffusion (M-2) or broth microdilution testing (M-7) for susceptibility testing of GBS. Commercial systems that have been cleared or approved for testing of streptococci other than *S. pneumoniae* may also be used. Penicillin susceptibility testing is not routinely recommended for GBS because penicillin-resistant isolates have not been confirmed to date.